

CLAIMS

What is claimed is:

Sub 1
1. A product demand forecasting system, comprising
a profile extractor that generates a demand profile of a new product yet
to be introduced based on demand profiles of similar products already
introduced, wherein the profile extractor normalizes and averages the demand
profiles of the similar products to obtain the demand profile of the new product;
a life-cycle demand predictor that generates a total life-cycle demand of
the new product based on historical demand data of the similar products;
a forecast creator coupled to the profile extractor and the demand
predictor to generate a life-cycle demand forecast for the new product based on
the demand profile and total life-cycle demand of the new product.

2. The product demand forecasting system of claim 1, wherein the
profile extractor further comprises
a relevant product selection module that selects the similar products and
extracts the historical demand data of the similar products from an external
historical demand database;

a demand normalization and average profile determination module that
calculates and normalizes the demand profile of each of the similar product,
and averages all the normalized demand profiles to obtain the demand profile
of the new product.

3. The product demand forecasting system of claim 2, wherein the

demand normalization and average profile determination module normalizes the demand profiles of the similar products for their lengths of life and total life-cycle demands.

4. The product demand forecasting system of claim 2, wherein the demand normalization and average profile determination module averages all the normalized demand profiles by

discretizing each profile at a pre-specified number of equidistant points between the beginning and end of the life-cycle;

calculating the empirical mean and the empirical standard deviation of all the profiles at these points to yield an averaged demand profile as the demand profile of the new product.

5. The product demand forecasting system of claim 4, wherein the demand normalization and average profile determination module also estimates variance information of the normalized and averaged demand profiles.

6. The product demand forecasting system of claim 1, wherein the life-cycle demand predictor further comprises

a relevant product selection module that selects the similar products and extracts the historical demand data of the similar products from an external historical demand database;

a future demand extrapolation module that extrapolates the total life-cycle demand of the new product.

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7. The product demand forecasting system of claim 6, wherein the future demand extrapolation module extrapolates the total life-cycle demand of the new product by

calculating a run-rate of each of the similar products;

associating each run-rate with a date that represents the midpoint of that product's life-cycle;

calculating an estimate of the run rate at the date of the midpoint of the life-cycle of the new product.

Sub A 8. The product demand forecasting system of claim 1, further comprising an updating module that provides a revised new total life-cycle demand estimate using (1) the total life-cycle demand of the similar product, (2) the demand profile of the new product, and (3) past demand information, when available, of the new product.

9. The product demand forecasting system of claim 8, wherein the forecast creator is also coupled to the updating module such that if the forecast creator receives the revised new total life-cycle demand estimate, the forecast creator uses the revised new total life-cycle demand estimate instead of the total life-cycle demand from the life-cycle demand predictor to calculate the life-cycle demand forecast.

10. A method of providing a life-cycle product demand forecast for a new product yet to be introduced, comprising
collecting historical demand data of similar products of the new product,

wherein the similar products have already been introduced;

generating demand profiles of the similar products based on the historical data of the similar products;

normalizing and averaging the demand profiles of the similar products to obtain a demand profile of the new product;

generating a total life-cycle demand of the new product based on the historical demand data of the similar products;

generating the life-cycle product demand forecast for the new product based on the demand profile and total life-cycle demand of the new product.

11. The method of claim 10, wherein the step of normalizing and averaging the demand profiles normalizes the demand profiles of the similar products for their lengths of life and total life-cycle demands.

12. The method of claim 10, wherein the step of normalizing and averaging the demand profiles averages all the normalized demand profiles by discretizing each profile at a pre-specified number of equidistant points between the beginning and end of the life-cycle;

calculating the empirical mean and the empirical standard deviation of all the profiles at these points to yield an averaged demand profile as the demand profile of the new product.

13. The method of claim 10, wherein the step of normalizing and averaging the demand profiles further comprises the step of estimating variance information of the normalized and averaged demand profiles.

14. The method of claim 10, wherein the step of generating a total life-cycle demand of the new product further comprises
calculating a run-rate of each of the similar products;
associating each run-rate with a date that represents the midpoint of that product's life-cycle;
calculating an estimate of the run rate at the date of the midpoint of the life-cycle of the new product.

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15. The method of claim 10, further comprising
determining if past demand information of the new product is available;
if the past demand information of the new product is available, then
providing a revised new total life-cycle demand estimate using (1) the total life-cycle demand of the similar product, (2) the demand profile of the new product, and (3) the past demand information of the new product.

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